Claims

1. A ferromagnetic perovskite oxide materials having a formula of $(A_{1-x}M_x)BO_3$, where A is at least one non-magnetic element selected from group of Ca, Sr, Ba, Pb, Y, La, Gd; B is at least one non-magnetic element with selected from group of Ti, Zr, Hf, Sn, Mo, Ta, W, Nb, Al, Bi; M is at least one magnetic elements selected from group of Fe, Co, Ni, Cr, Mn, and V; And index x satisfies $0<x<0.15$;
2. The material composition of claim 1, A is Ca, Ba; B is Ti, Zr, Hf; and M is Fe, Co, Ni.
3. The Material composition according claim 2, wherein x is a range from 0 to 0.15.
4. The material composition of claim 2 having specific formula $(Ba_{0.95}Fe_{0.05})TiO_3$, wherein said saturation magnetization about 0.10μB/mol Fe at 300K, and the coercive fields about 16Oe at 300K.
5. The material composition of claim 2 having specific formula $(Ca_{0.95}Fe_{0.05})TiO_3$, wherein said saturation magnetization about 0.11μB/mol Fe at 300K, and the coercive fields about 12Oe at 300K.
6. The material composition of claim 2 having specific formula $(Ba_{0.95}Fe_{0.05})ZrO_3$, wherein said saturation magnetization about 0.11μB/mol Fe at 300K, and the coercive fields about 25Oe at 300K.
7. The material composition of claim 2 having specific formula $(Ca_{0.95}Fe_{0.05})ZrO_3$, wherein said saturation magnetization about 0.12μB/mol Fe at 300K, and the coercive fields about 4.5Oe at 300K.
8. The material composition of claim 2 having specific formula $(Ba_{0.95}Fe_{0.05})HfO_3$, wherein said saturation magnetization about 0.125μB/mol Fe at 300K, and the coercive fields about 20Oe at 300K.
9. The material composition of claim 2 having specific formula $(Ca_{0.95}Fe_{0.05})HfO_3$, wherein said saturation magnetization about 0.12μB/mol Fe at 300K, and the coercive fields about 7Oe at 300K.
10. A method for producing a ferromagnetic perovskite oxide ceramics, said method comprises the steps:
    (1) Preparing individual metal oxide according to the desired stoichiometry for amounts of :
    (a) metal oxides at least one non-magnetic element selected from group of Ca, Sr, Ba, Pb, Y, La, Gd; (b).metal oxides of at least one magnetic element selected from group of Fe, Co, Ni, Mn, and V; (c) metal oxides at least one non-magnetic element selected from group of Ti, Zr, Hf, Sn, Mo, Ta, W, Nb, Al.
    (2) Mixing together said individual metal oxides (a), (b) and (c) to form a sigle mixture.
    (3) Firing said mixture in argon or reducing atmosphere at temperature for a time sufficient to convert the said mixture to s single phase ferromagnetic perovskite oxides.
11. A method for producing ferromagnetic perovskite oxide thin films, said method comprises the steps of:
    (1) Preparing a ceramic target comprising a ferromagnetic perovskite oxide composition of (a) metal oxides at least one non-magnetic element selected from group of Ca, Sr, Ba, Pb, Y, La, Gd; (b).metal oxides of at least one magnetic

element selected from group of Fe, Co, Ni, Mn, and V; (c) metal oxides at least one non-magnetic element selected from group of Ti, Zr, Hf, Sn, Mo, Ta, W, Nb, Al.

(2) deposition of a ferromagnetic perovskite oxide thin film by sputtering the said ceramic target under Ar atmosphere or vacuum and temperature in a range of 400°C to 800°C.

(3) post-annealing of ferromagnetic perovskite oxide thin film in Ar atmosphere from 0 minutes to 2 hours.

12. A ferromagnetic perovskite oxide materials having a formula of $A(B_{1-x}M_x)O_3$, where A is at least one non-magnetic element selected from group Ca, Sr, Ba, Pb, Y, La, Gd; B is at least one non-magnetic element selected from group of Ti, Zr, Hf, Sn, Mo, Ta, W, Nb, Al, Bi; M is at least one magnetic element selected from group of Fe, Co, Ni, Cr, Mn, and V; And index x satisfies $0<x<0.15$;
13. The material composition of claim 12, A is La, Sr; B is Ti, Mo; and M is Fe.
14. The Material composition according claim 13, wherein x is a range from 0 to 0.15.
15. The material composition of claim 13 having specific formula $La(Mo_{0.25}Fe_{0.75})O_3$, wherein said magnetic Curie temperature is 940K, and the coercive fields about 238Oe at 300K.
16. The material composition of claim 13 having specific formula $Sr(Ti_{0.95}Fe_{0.05})O_3$, wherein said magnetic Curie temperature is 610K , and the coercive fields about 1170Oe at 300K.
17. A method for producing a ferromagnetic perovskite oxide ceramics, said method comprises the steps:

(1) Preparing individual metal oxide according to the desired stoichiometry for amounts of :

(a) metal oxides at least one non-magnetic element selected from group of Ca, Sr, Ba, Pb, Y, La, Gd; (b).metal oxides of at least one magnetic element selected from group of Fe, Co, Ni, Mn, and V; (c) metal oxides at least one non-magnetic element selected from group of Ti, Zr, Hf, Sn, Mo, Ta, W, Nb, Al.

(2) Mixing together said individual metal oxides (a), (b) and (c) to form a sigle mixture.

(3) Firing said mixture in argon or reducing atmosphere at temperature for a time sufficient to convert the said mixture to s single phase ferromagnetic perovskite oxides.

18. A method for producing ferromagnetic perovskite oxide thin films, said method comprises the steps of:

(1) Preparing a ceramic target comprising a ferromagnetic perovskite oxide composition of (a) metal oxides at least one non-magnetic element selected from group of Ca, Sr, Ba, Pb, Y, La, Gd; (b).metal oxides of at least one magnetic element selected from group of Fe, Co, Ni, Mn, and V; (c) metal oxides at least one non-magnetic element selected from group of Ti, Zr, Hf, Sn, Mo, Ta, W, Nb, Al.

(2) deposition of a ferromagnetic perovskite oxide thin film by sputtering the said ceramic target under Ar atmosphere or vacuum and temperature in a range of 400°C to 800°C.

(3) post-annealing of ferromagnetic perovskite oxide thin film in Ar atmosphere from 0 minutes to 2 hours.